Higher Education In and After COVID-19: Response for Future

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Abstract

All most within few weeks' time, the pandemic has forced more than $600 billion higher education industry worldwide to either closed their gates to students or shift to online mode.

In the first place the paper highlights the current landscape of higher education in India. The paper further highlights the impact of pandemic on higher education institutes especially those which are self-financed or are privately owned. Some impact of pandemic was seen in short term only but as the pandemic keeps hitting back, they need to be reviewed in medium and short term. The paper envisions journey of higher education industry in 2030 and look for various models, short term and long term interventions which can be adopted by higher education institutions to overcome the challenges faced by them. This paper tries to look into future by focussing on 'digital transformation' rather than just 'digital learning'. The paper reviews the relevant literature from various sources to make some arguments in the paper.

Keywords

Higher education India, Online education, Covid-19, Pandemic, and Future response.

1. Introduction

Growing capitalism has created a new world economic order where knowledge is considered to be an important and predominant factor of production (Bhoite, 2009). In this new world order, the major drivers of affluence, status and power for individuals are their acquired knowledge and skills. Hence for both developed and developing countries, they have become the great determinant of economic prosperity and development. Hence strategic importance of higher education has increased manifolds playing a larger role in production and dissemination of knowledge. With

51,649 institutions, the higher education system of India is considered to be one of the largest in the world (Ravi, Gupta & Nagaraj, 2019). Due to the association of social, cultural, economic and political externalities with higher education, it is considered to be a public good or at least a quasi-public good (Agarwal, 2006). It is considered to be Merit-2 good (education other than elementary education) and hence it is the responsibility of the state to do investments for it. It is considered to be an important constituent of human capital because of increasing returns to total factor productivity (CABE Committee, 2005). In contrast to other market-based economies where the universalization of higher education is supported by public institutions, in a country like India it is a market-driven process which is led by public institutions further enabled by private institutions and funded by the households (Varghese,2015). India's higher education is governed by different regulatory bodies such as Medical Council of India, All India Council for Technical Education (AICTE), Bar Council of India and University Grant Commission (UGC) regulating universities, colleges and courses (Shah, 2015). India has a huge market of informal education which constitute of pre-primary schools, coaching classes and multi-media/technology-based courses considered as supplementary to formal education acquired at school, colleges and universities (KPMG and Google, 2017).

Starting of FY2020 came as big jolt to education Industry worldwide when an unknown coronavirus (Covid-19) spreads to different parts of the world (Cortez and Johnston, 2020). The pandemic forced education industry to take a drastic step and move either to emergency remote teaching or completely shut down (Liguori and Winkle 2020). The pandemic gave even less than weeks' time to plan any counter move. The available technologies like Zoom or Microsoft teams or Google meet app etc. came to rescue and helped in maintaining academic services at least in some part of the world. Similar to other institutions, the biggest challenge for these Higher Education Institutes (HEIs) in India, especially private ones were crisis of funds due to delayed academic cycle. HEIs main revenue source is the tuition fees paid by its students. Delayed academic cycles can reduce the student enrolments which can cause fiscal pain to these institutions. Higher education industry has remained largely operational in its traditional format of brick and mortar and its first love was always being face to face learning. Due to current situation, this traditional model is shattered and broken. Teaching

fraternity around the world is working day and night to transfer their learning materials for delivering online classes. But perhaps the time has come to take a pause and think about the difference between 'digitalisation' and 'digital transformation' of learning. Interestingly in the recent years' a lot of talking is happening on predicting change in the landscape of education sector due to development of disruptive technologies like Artificial Intelligence (AI), Machine Learning, Big Data, Block Chain, Virtual Reality(VR) and Augmented Reality (AR). Hence, the time has come to take a long term view of higher education and its future. The higher education institutions should differentiate between short term course of action and long term strategy as even after one year, pandemic and its aftermath is far from over. This pandemic presents a unique opportunity to higher education institutes to adopt a long term strategy to speed and scale to transform the sector beyond traditional outcomes and demographics. Now higher education institutions should not just see it as a question of business continuity only and must differentiate between remote delivery (or referred by some experts in various webinars conducted during this tenure as 'emergency remote teaching') from 'effective learning' irrespective of its mode whether it is online or offline.

2. Indian Higher Education: Good, Bad, and Ugly

Varghese (2014) in their study have categorized growth of Indian higher education system in the period of post-independence in three stages. The stage one, is characterized as the stage of high growth but limited access period (1950-70) followed by stage two between 1970-90 as the stage of decreasing growth in enrolment and stage three as the revival and massive expansion of enrolment (Varghese 2015) in higher education in India (for the period of 1990 and after).

Total enrolment in higher education {as per All India survey on higher education for the year 2018-19 conducted by Ministry of Human Resource Development (MHRD)}, has been estimated to be 37.4 million with 19.2 million males and 18.2 million females in India (Singh et. al. 2021). The gross enrolment ratio (GER) in higher education in India is 26.3 percent which was calculated for the age group of 18-23 years.

Table 1: Higher Education: Institutions and Enrolment in India

Year	Central Universities	State Universities	Deemed to be universities	Institutes of National Importance	Private Universities	Total	Colleges	Enrolment (in millions)	GER %
1950-51	3	24	-	-	-	27	578	0.2	-
1960-61	4	41	2	2	-	49	1819	0.6	1.5
1970-71	5	79	9	9	-	102	3277	2	4.2
1980-81	7	105	11	9	-	132	4577	2.8	4.7
1990-91	10	137	29	9	-	185	6627	4.4	5.9
2001-02	17*	176	47	11	-	256	12806	8.8	8.1
2011-12	42	299	40	59	178	621**	34908	28.5	19.4
2015-16	41	339	122	74	183	774	39071***	34.6	24.5
2018-19	44	378	124	122	289	962	38179***	37.4	26.3

* Includes IGNOU & Central Agricultural University, Imphal

** Other institutes

*** Excluding standalone institutions

Source: *(i)Varghese 2015, (ii) University Development in India: Basic Fact and Figures-1995-96 to 2000-01 (U.G.C. Information and Statistics Bureau), New Delhi, December 2002. (iii) All India Survey on Higher Education (aishe 2010-11), 2015-16 & 2018-19*

In a study by Jiang & Lui (2019) claimed that mainland in China experienced its initial wave of increase in 1993 where gross enrolment in higher education doubled up between 1992 to 1998. In the starting of 1999 increase in number of colleges started, which resulted in an expansion from less than 6 percent in 1998 to over 50 percent in 2017. So, on one hand, China succeeded in increasing post graduate enrolment, India, on the other hand, continued to record higher level of undergraduate enrolment (Yeravdekar and Tiwari 2014). As per All India Survey on Higher Education for the year 2018-19, 79.8 percent of the Indian students are enrolled in Undergraduate level programme (Sengupta, 2019). Over the years' enrolment has increased at all the levels. During the last 5 years, Compound Annual growth rate (CAGR) was calculated at 1.8 percent.

Table 2: Level wise Student Enrolment in India

Year	Ph.D.	M.Phil.	Post Graduate	Under Graduate	PG Diploma	Diploma	Certificate	Integrated	Grand Total
2014-15	117301	33371	3853438	27172346	215372	2507694	170245	141870	34211637
2015-16	126451	42523	3917156	27420450	229559	2549160	144060	155422	34584781
2016-17	141037	43267	4007570	28348197	213051	2612209	166617	173957	35705905
2017-18	161412	34109	4114310	29016350	235263	2707934	177223	195777	36642378
2018-19	169170	30692	4042522	29829075	224711	26993395	162697	241126	37399388
CAGR	7.6	-1.71	1.0	1.9	0.9	1.5	-0.9	11.2	1.8

Source: *All India survey on higher education (aishe) for 2018-19 conducted by Ministry of Human Resource Development (MHRD)*

It is evident from Table-2 and Table-3 that gross enrolment in higher education is showing an increasing trend. But when it is compared to countries like Pakistan (9 percent), Afghanistan (9.6 percent), Bangladesh (20.5 percent), clearly India is on a higher side whereas in comparison to China (50 percent), Korea (94.3), Germany (70 percent) and USA (88 percent) it is only in initial stages of massification of higher education (Varghese, 2015). When GER is below 15 percent it is considered to be a system which is only accessible to rich or privileged. If the rate is between 15 percent to 50 percent higher education becomes accessible to people with some formal qualifications. The higher education system is universal when GER reaches above 50 percent (Ravi, Gupta and Nagaraj, 2019).

Table 3: International Comparison on Gross Enrolment Ratio, Tertiary (Both Sexes %)

Year	2015		2016		2017		2018
Country							
Afghanistan	8.23068		-.		-.		-.
Australia	..		118.61086		120.96571		113.14216
Bangladesh	13.86508		..		17.87436		18.15146
Brazil	49.91353	*(+)	51.05413	(+)	50.48851	(+)	51.3436
China	42.43073		46.04043		48.01902		49.07326
France	61.51048	(+)	62.78593	(+)	64.72768	(+)	65.629
Germany	65.50391		67.74687		69.58059		70.24665
India	25.43213		26.76899		26.82922		27.44213

Year	2015		2016		2017		2018
Country							
Kazakhstan	48.80432		46.37351		46.61612		50.14618
New Zealand	77.9813		80.56338		81.77039		82.03322
Pakistan	9.65985		9.2259		9.03274		9.34892
Republic of Korea	94.85205		94.33984		94.03362		94.34969
Russian Federation	78.4631		79.93813		80.63262		81.90931
Singapore	..		..	(+)	83.94098	(+)	84.79291
South Africa	19.80924		..		20.91845		22.36603
Tajikistan	24.70546		26.58862		29.16614		31.25656
Thailand	50.18006		..		49.28681		..
United States of America	88.62687	(+)	88.88941	(+)	88.83505	(+)	88.16739

*+:National Estimate

\- Not Updated

Source: *Data extracted on 29 Jun 2020 05:45 UTC (GMT) from UIS .State*

Referring to Table-3, the huge gap became quite evident while looking at gross enrolment of students in higher education in comparison to other countries. The GER in India is around 28 percent whereas it is reported as 88 percent in USA and 50 percent in China. So if this gap has to be bridged, India needs to establish huge number of brick & mortar educational institutions which seems to be unlikely looking at the public expenditure done by Government of India (GOI) in education, especially HEIs. So importance of number of higher education institutes providing quality education at a lower cost or institutions which are funded by state or centre is very high for a country like India to reach the stage of mass universalization.

3. Challenges Posed by COVID-19

In India, three types of responses were found from different institutions based on the category they belonged to. The first kind of response was from advanced Institutions with more resources and technological know-how and infrastructure like IIT Mumbai, IIM-B, IIM-A. Indian Institute of Technology Bombay has announced to conduct online classes for next

trimester (August, 2020 onwards) avoiding face to face classes due to COVID-19 pandemic. The second category of institutions is digital newcomers or evolving adopters of digital transformation. The third category of institutions are who lack capabilities, resources and infrastructure can also be called foot draggers. The higher education institutions can belong to different categories but their leaders need to figure out what action they need to take their institutions forward in this digital transformation journey. Initially the crisis was proving to be a crowning ceremony for online education as everybody believed that this crisis will persist in short term only. But worldwide pandemic has proved each one wrong and have a backlash to online education as students in lot of circumstances found it ineffective The universities also face hardship in tracking progress and actual learning of students.

Many higher education institutes operate like small towns where famous campuses bring business as admission aspirants and their relatives stay in nearby hotels, eat at local restaurants, students organize events, get-together, theme parties, conferences, sports events. They act like life line to the smaller towns. These activities add to the experience of college life and hence adds to revenue of the colleges also. Education is always considered to be a labour oriented and intensive industry and hence normally its rise in cost is at a faster pace than inflation in the country (Baum, Kurose and McPherson 2013). The forced shift to online education can force HEIs to adopt some cost saving innovations. Deming et al. (2015) found in their study that institutions with more online students' intake charge lower fee though impact on quality of education remained unassessed. So if this is the general perception of students, then question arises that whether for online and face to face courses same fee should be or should not be charged from students.

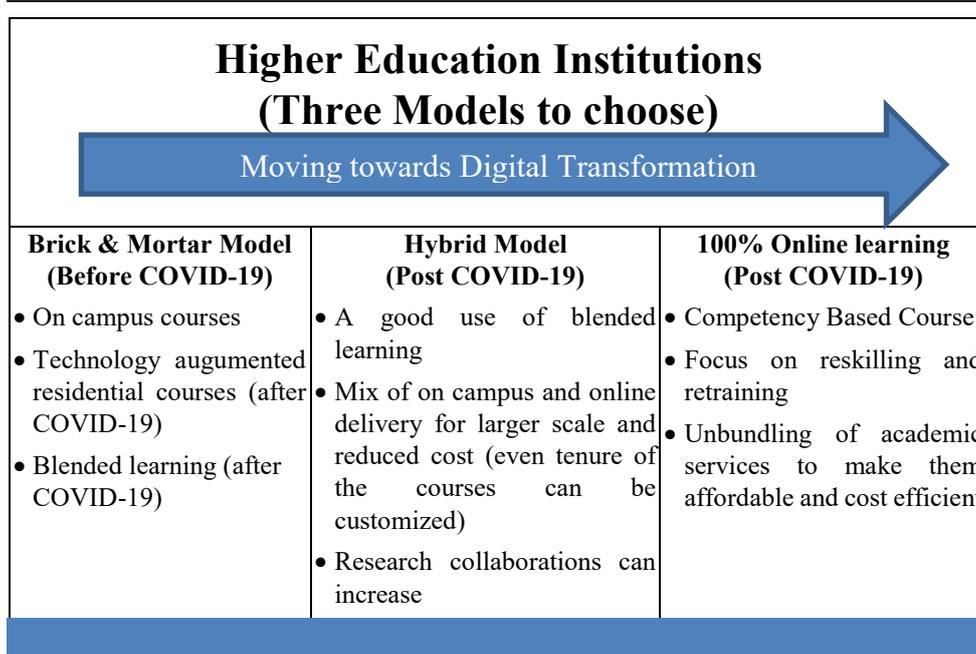| Immediate	Short-Term	Long-Term
• Managing Continuity through restructuring and remote delivery • Managing lack of trust and credibility amongst current students (students of academic year 2019-20) • Planning for Full one year (though if crisis gets over, resuming face to face learning)	• Managing delayed Academic cycle. • Building of trust and credibility in students of academic year 2020-21 • Facing resource constraints due to reduced enrolments • Hiring of Foreign faculty will become cheaper due to integration • Institutes of National Importance can increase their foreign intake if they use online presence	• Visioning exercise for 2030 • Focus on learner Centric Approach while using digital learning • Focussing on Digital Transformation for enhanced learning experience • Identifying changes in learning needs • Build on small , low cost experiments done during and after COVID -19 crisis • Offering Competency based Courses • Focussing of retraining of labour forces due to change in job scenarios • Building on Artificial Intelligence resistant capabailities for survival

Figure 1: Challenges and Response for Business Education Institutions during Pre and Post Covid-19 World

Source: *(i) Deloitte (2020) (ii) Author's Compilation (iii) Harvard Business Publishing Webinar on "COVID-19's Impact on the Future of Higher Education: What University Leaders Should Be Thinking About Now" by P.S. Vijay Govindarajan*

4. Pathways for Digital Transformation

The pandemic has impacted the employment opportunities in many industries like tour and travel, automobile and electronics industry etc. The need of the hour is reskilling labour and provide employment opportunities to them. But only operating in brick and mortar model makes it heavy in terms of public expenditure required on the part of central and state governments. Even if new colleges, universities, polytechnic and training institutes are opened sufficient qualified staff and arranging trained faculty will be an issue.

Now leaders of higher education institutes need to think and plan strategically not only for 2020-21 or next academic year but for the next 5 to 10 years. So this understanding is everywhere that face to face learning or more interactive styles are better for engaging students. Nowadays the question arises that can all the learning needs of the students be only met by face to face learning or rebalancing of the mix between 100 percent online and face to face learning? Consequently, there must be certain courses (which focusses only on Knowledge sharing) which could be easily substituted by online mode and some courses which could be enhanced in terms of the learning experience by the use of technology.

Higher Education Institutions
(Three Models to choose)

Moving towards Digital Transformation

Brick & Mortar Model (Before COVID-19)	Hybrid Model (Post COVID-19)	100% Online learning (Post COVID-19)
• On campus courses • Technology augumented residential courses (after COVID-19) • Blended learning (after COVID-19)	• A good use of blended learning • Mix of on campus and online delivery for larger scale and reduced cost (even tenure of the courses can be customized) • Research collaborations can increase	• Competency Based Course • Focus on reskilling and retraining • Unbundling of academic services to make them affordable and cost efficient

Source: Author's Compilation

Figure 2: Different aspects of Three Models for Higher Education Institutions

The digital transformation in the context of higher education (Adedoyin and Soykan, 2020) means transforming an organization by use of technology and data for better fulfilment of its student's needs. Sandkuhl and Lehmann (2017) have described three different possible ways of achieving digital transformation in higher education (Marks et al. 2021). The first way is to redefine and focus on the change of services before addressing major improvements in operations by creating new educational products and transforming existing ones into digital products. The second means is to emphasise on the change in operational processes first aiming at improving digital internal processes like admission, registration of programmes, the examination of courses and other support services like teacher allocation, scheduling etc. The emphasis will be on having an integrated campus management functionality which is accessible to students from outside the physical campuses. The third method is service-operation combination where the integration of both will happen. This is possible by making the content

of the education digital and providing means for better student-teacher interaction and collaboration (Sandkuhl and Lehmann, 2017). So courses offered traditionally for face to face learning will be decomposed into a smaller offering e.g. a three or four-year programme include certification courses, each course instead of having 5 modules can be decomposed into smaller modules along with flipped videos, pre-reads, group discussions replaced by Padlet and reflection notes are replaced by KWL charts. Many such pilot projects taken during or Post COVID-19 can define the most suitable path for the digital transformation of any higher education institution.

Worthington and Higgs, (2011) in their study have rightly pointed out that profit maximization assumption does not suit to the universities and institutions as they are operating in quasi-markets (government funds them but is not the provider of educational services, and it retains different degrees of control and regulates on the number and size of institutions as well as the inputs and outputs employed). Still cost minimisation assumption will be applicable to all the institutions those who desire efficient and effective utilization of resources and output (Worthington and Higgs, 2011). So the long-run objective for any educational institutes can be to produce and deliver academic services (desired output) at the lowest possible cost. This means that an institution or university can unbundle its academic services. For example, any premium higher institution charges its students based on services it provides for a fully residential programme. This could involve playground and other recreational facilities, information and communication technologies (ICT), bigger auditoriums and cafeteria along with learning experience provided by its reputed faculty and trainers. A student from a modest income group might only be interested in paying for academic services rather than full recreational facilities. By offering fully online courses, short term competency-based courses and courses offered with hybrid model (mix of blended and face to face learning). The regulators of higher education institutes can take the note of the same and achieve the goal of mass universalization of higher education in India. HEIs can bag an opportunity for admitting higher number of students with same physical infrastructure and still offer its

courses at lower cost. This can be interpreted as adjusting scale of operations in such a way by dividing and modifying its production process in terms of capital-labour mix in the long run and dividing it into smaller units for achieving economies of scale. The commitment of resources is done in the long run but once commitment is done its implementation is done in the short run. A comparison drawn with China on how it has achieved higher GER in a shorter span of time, it was found that larger number of students were studying in a smaller number of Universities whereas in India low number of students were admitted for developing high quality institutions. This has given rise to a broken system and disjointed system (Ravi, Gupta and Nagaraj, 2019; Council B, 2013). So if reputed public universities, private institutions/universities gradually adopt hybrid or hundred percent online courses or even offer complete programmes, they can deliver superior quality courses but with the existing physical infrastructure.

5. Conclusion

The pandemic Covid-19 has presented a perfect opportunity for transforming the higher education system especially in Indian context. The Institutes or universities should think for proposing more flexible learning possibilities, exploring blended or hybrid learning ways and for rebalancing the mix of synchronous learning with asynchronous. The regulators and government should also pause and rethink before fixing their budgetary deficits due to pandemic. This pandemic should initiate a broad based dialogue with government at all levels, employers, faculty, trainers, researchers, students, institutions and their representatives' associations about higher education and its realignment (creative alignment) to changing times. The institutions which will build digital capabilities will show resilience for facing any kind of crisis in future. The digital transformation will provide opportunities for redesigning service delivery and transforming learning experience. This learning experience will have the capability to surpass age, demographics, economic status, employment type by offering affordable exciting courses with content through leveraging digital technologies to non traditional students.

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